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EXAMINER	
SASAN, ARADHANA	
ART UNIT	PAPER NUMBER
1615	
MAIL DATE	DELIVERY MODE
03/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/664,803	KOSITPRAPA ET AL.	
	Examiner	Art Unit	
	ARADHANA SASAN	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-14,17-20 and 31-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-14,17-20 and 31-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/29/03, 3/3/06 and 8/30/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1. The remarks and amendments filed on 1/8/08, and the request for continued examination filed on 1/8/08 are acknowledged.

2. Claims 5-6, 15-16 and 21-30 were cancelled.

3. Claims 1-4, 7-14, 17-20 and 31-34 are included in the prosecution.

Continued Examination Under 37 CFR 1.114

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/8/08 has been entered.

Information Disclosure Statement

5. The information disclosure statements (IDS) submitted on 12/29/03, 3/3/06 and 8/30/07 are acknowledged. The submissions are in compliance with the provisions of 37 CFR 1.97 and 1.98. Accordingly, the examiner is considering the information disclosure statements.

See attached copy of PTO-1449.

Response to Arguments

Rejections on the ground of nonstatutory obviousness-type double patenting

6. Applicant's arguments regarding the rejection of claims 1, 2, 4 and 8-10 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 20, and 33-40 of copending Application No. 11/094,493 ('493 hereinafter) have been fully considered but are not found persuasive. Applicant submits that since the present application was filed before '493 and '493 is currently rejected under 35 USC §§ 103 and 112, first paragraph, the provisional double patenting rejection of the present application should be withdrawn. This is not persuasive because instant claims would have been obvious over claims 1, 20, 33, 37 and 38 of '493 since the claims of '493 recite a controlled release core of metformin and an immediate release of a thiazolidinedione - piogliatazone. Therefore, the rejection of 11/15/06 will be maintained.

Rejection of claims 1-4, 7-14, 17-24, and 27-31 under 35 USC § 112

7. Applicant's arguments and amendments regarding the rejection of claims 1-4, 7-14, 17-24 and 27-31 under 35 USC § 112 have been fully considered and are found persuasive with respect to piogliatazone as the "thiazolidinedione derivative".

However, with respect to claims 3 and 13 that recite the limitation of "optionally a secondary seal coat surrounding the core", it is still unclear how an optional secondary seal coat limitation can be dependent on claims (1 and 11 respectively) that require the seal coat.

Therefore, the rejection (with respect to claims 3 and 13) of 6/11/07 is maintained.

Rejection of claims 1-31 under 35 USC § 103(a)

8. Applicant's arguments regarding the rejection of claims 1-31 under 35 USC § 103(a) have been fully considered and are found persuasive. The rejection of 6/11/07 is withdrawn.

However, upon further consideration, rejections based on a new reference follow.

MAINTAINED REJECTIONS

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 3 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 13 recite a seal coat as an optional component. However, the claims on which they ultimately depend require a seal coat. The instant claims are therefore confusing and indefinite, since it is not clear whether or not a seal coat is required.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1, 2, 4 and 8-10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 20, 33 and 37-38 of copending Application No. 11/094,493 ('493 hereinafter). Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications describe a controlled release core comprising metformin and an immediate release thiazolidinedione derivative containing component comprising pioglitazone. The difference is that instant claims are drawn to an immediate release thiazolidinedione containing coating and claims of '493 are drawn to an immediate release thiazolidinedione containing "component". It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare an immediate release component in the form of an immediate release coating with a thiazolidinedione. The same ranges for peak plasma levels (Tmax) of the pioglitazone are recited in instant claims and in claims of '493.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

NEW REJECTIONS/OBJECTIONS

Claim Objections

13. Claim 1 is objected to because of the following informalities: In part (a) of claim 1, line 5, instead of a semi-colon there is a period after "acceptable excipient". Appropriate correction is required.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claim 1-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Cutie et al. (WO 01/82875), in view of Lewis (WO 01/35940).

The claimed invention is a pharmaceutical dosage form having a first and second active drug, the dosage form comprising: (a) a controlled release core consisting essentially of metformin or a pharmaceutically acceptable salt thereof and at least one pharmaceutically acceptable excipient. (b) a primary seal coat that does not contain an active pharmaceutical ingredient, that rapidly disperses or dissolves in water and that is applied to the controlled release core; and (c) an immediate release thiazolidinedione derivative containing coat applied to the primary seal coat wherein the thiazolidinedione derivative is pioglitazone, or pharmaceutically acceptable salts, thereof and wherein the dosage form exhibits the following dissolution profile when tested in a USP Type 2 apparatus at 75 rpms in 900 ml of simulated intestinal fluid and 37°C: 10-45% of the

metformin is released after four hours; 30-90% of metformin is released after eight hours and not less than 75% of the pioglitazone is released after 30 minutes.

Cutie teaches a “core formulation comprising a first layer comprising pioglitazone, which covers at least a portion of a core comprising the biguanide, metformin (i.e. glucophage)” (Page 1, lines 6-7). A core of the metformin is formed and a layer of pioglitazone hydrochloride is deposited on the core (Page 10, claim 8). This reference teaches that “the first layer should comprise pioglitazone hydrochloride because its dose requirement is lower compared to metformin. Additionally, it is slightly non-polar, its solubility rate slower, and its absorption rate thus dependent on its dissolution rate in the contents of the gastrointestinal tract compared with metformin” (Page 2, lines 26-30). The “core formulation … is preferably fabricated by compression into a tablet" (Page 6, lines 15-16). The core formulation may be coated with sugar, shellac or other enteric coating agents (Page 7, lines 9-11).

Cutie does not expressly teach a primary seal coat that does not contain an active pharmaceutical ingredient, that rapidly disperses or dissolves in water and that is applied to the controlled release core.

Lewis teaches a pharmaceutical composition comprising a thiazolidinedione that is formulated as a thin layer upon the surface of the metformin hydrochloride (Page 1, lines 30-35). The metformin hydrochloride is in a compacted form, such as a tablet and the composition also comprises an inert barrier layer between the layer containing thiazolidinedione and the metformin hydrochloride (Page 1, lines 36-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a core of the metformin and deposit a layer of pioglitazone hydrochloride on the core, as taught by Cutie, combine it with a composition comprising an inert barrier layer between a layer containing thiazolidinedione and metformin hydrochloride, as taught by Lewis, and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because the inert barrier layer taught by Lewis protects the inner core comprising metformin hydrochloride, thereby enhancing the controlled release properties of the metformin hydrochloride.

Regarding instant claims 1 and 11, the limitation of the controlled release core consisting essentially of metformin would have been obvious over the core of metformin taught by Cutie (Page 1, lines 6-7 and Page 10, claim 8) and Lewis (Page 1, lines 30-35). The limitation of the primary seal coat that does not contain an active pharmaceutical ingredient would have been obvious over the coating of the core with sugar, shellac or other enteric coating agents as taught by Cutie (Page 7, lines 9-11), in view of the inert barrier layer between the layer containing thiazolidinedione and the metformin hydrochloride, as taught by Lewis (Page 1, lines 36-39). The limitation of the immediate release thiazolidinedione derivative containing coat would have been obvious over the layer of pioglitazone hydrochloride on the core of metformin as taught by Cutie (Page 10, claim 8), in view of the thiazolidinedione that is formulated as a thin layer upon the surface of the metformin hydrochloride core as taught by Lewis (Page 1, lines 30-35). The limitation of the dissolution profile of the dosage form would have been

obvious over the dosage form disclosed by Cutie that includes pioglitazone hydrochloride from 1mg to 45mg and metformin from 100mg to 2550mg (Page 3, lines 7-9). One with ordinary skill in the art would use the standard dissolution procedures from the USP to test the in vitro dissolution profile of the formulation of a core of metformin with a layer of pioglitazone hydrochloride. Since the metformin is in the controlled release core and the pioglitazone is in the immediate release portion of the dosage form (as taught by Cutie), long term release of the metformin (even after 8 hours) and short term or immediate release of the pioglitazone (after 30 minutes) would be obvious to one of ordinary skill in the art.

Regarding instant claims 2 and 12, the limitation of the controlled release core as an osmotic tablet would have been obvious over the controlled release core of metformin that may contain “binders such as microcrystalline cellulose, gum tragacanth or gelatin; an excipient such as starch or lactose, a disintegrating agent such as alginic acid, Primogel®, corn starch ... a lubricant such as magnesium stearate ..." as taught by Cutie (Page 6, line 33 to Page 7, line 3). One with ordinary skill in the art would know that osmotic tablets are generally used for controlled or sustained release of active ingredients. One with ordinary skill in the art would know that osmotic tablets contain components such as binders and disintegrating agents that promote the gradual break down of the tablet that subsequently allows for controlled or sustained release.

Regarding instant claims 4 and 14, the limitation of the metformin hydrochloride would have been obvious over the metformin taught by Cutie (Page 2, lines 5-9) and the metformin hydrochloride taught by Lewis (Page 1, lines 24-25). The limitation of the

pioglitazone hydrochloride would have been obvious over the pioglitazone hydrochloride taught by Cutie (Page 2, lines 10-13).

Regarding instant claims 7 and 17, the limitation of the release of metformin that is not regulated by an expanding polymer would have been obvious over the core comprising metformin as taught by Cutie (Page 10, claim 8).

Regarding instant claims 8 and 18, the limitation of the Tmax of metformin would have been obvious over the dosage form disclosed by Cutie that includes metformin from 100mg to 2550mg (Page 3, lines 7-9). One with ordinary skill in the art would administer the dosage form and measure the peak plasma levels of metformin. Controlled release is generally known to delay the release of an active ingredient. Since the metformin is sequestered in the controlled release core, it would have been obvious that the Tmax would range from 8-12 hours, since

Regarding instant claims 9-10 and 19-20, the limitation of the Tmax of the thiazolidinedione would have been obvious over the dosage form disclosed by Cutie that includes pioglitazone hydrochloride from 1mg to 45mg (Page 3, lines 7-9). One with ordinary skill in the art would administer the dosage form and measure the peak plasma levels of the thiazolidinedione. Immediate release is generally known to hasten the release of an active ingredient. Since the thiazolidinedione is present in the immediate release layer, it would have been obvious that the Tmax would range from 1-12 hours.

Regarding instant claims 33 and 34, the limitation of the release of pioglitazone as tested in a USP apparatus would have been obvious over the dosage form disclosed by Cutie that includes pioglitazone hydrochloride from 1mg to 45mg and metformin from

100mg to 2550mg (Page 3, lines 7-9). One with ordinary skill in the art would use standard dissolution procedures from the USP to test the in vitro dissolution profile of the formulation of a core of metformin with a layer of pioglitazone hydrochloride. Since the pioglitazone is in the immediate release portion of the dosage form (as taught by Cutie), short term or immediate release of the pioglitazone (after 20 minutes and after 30 minutes) would have been obvious to one of ordinary skill in the art.

16. Claim 1-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Cutie et al. (WO 01/82875), in view of Lewis (WO 01/35940), and further in view of Vergez et al. (US 2006/0204578).

Cutie teaches that the core formulation can have an outer shell made of a biodegradable material (including cellulosic polymers, polyvinyl acetate, and polyvinyl alcohol) (Page 7, lines 13-28).

Cutie and Lewis do not expressly teach a semipermeable membrane.

Vergez teaches a controlled release osmotic device of two or more different active agents where the “core is surrounded by a membrane having at least one or two preformed holes. The first pharmaceutical composition provides a controlled release of a first active agent through its respective first preformed passageway(s) in the semipermeable membrane. The second pharmaceutical composition provides a controlled release of a second active agent through a respective second passageway(s) in the semipermeable membrane. Both layers deliver their respective active agent through osmotic pumping” (Page 2, [0015]). Semipermeable membrane materials

including cellulose acetates, flux enhancing agents (PEG 400), and plasticizers are disclosed (Page 10, [0109]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a core of the metformin and deposit a layer of pioglitazone hydrochloride on the core, as taught by Cutie, combine it with a composition comprising an inert barrier layer between a layer containing thiazolidinedione and metformin hydrochloride, as taught by Lewis, further combine it with the osmotic controlled release device comprising a semi permeable membrane, as taught by Vergez, and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because osmotic devices with semipermeable membrane components (such as cellulose polymers, flux enhancing agents and plasticizers) are known in the art, as evidenced by the osmotic controlled release device of Vergez.

Regarding instant claims 3, 13 and 31, the limitation of 50-98% of metformin in the core would have been obvious over the 500mg of metformin HCl in the core (calculated percent: 500mg/520mg = 96.15% of granules) as taught by Lewis (Page 7, lines 10-13). The limitation of 0.1-40% of a binding agent would have been obvious over the 15mg of polyvinylpyrrolidone (calculated percent: 15mg/520mg = 2.88% of granules) as taught by Lewis (Page 7, Example 1, line 14). The limitation of 0-5% of a lubricant would have been obvious over the 5mg of magnesium stearate (calculated percent: 5mg/520mg = 0.96%) as taught by Lewis (Page 7, Example 1, line 15). The secondary seal coat surrounding the coat would have been obvious over the inert barrier layer

between the layer containing thiazolidinedione and the metformin hydrochloride, as taught by Lewis (Page 1, lines 36-39). The semipermeable membrane would have been obvious over the semipermeable membrane taught by Vergez (Page 10, [0109]). The limitation of 50-99% of a polymer would have been obvious over the cellulose acetate (calculated percent: 19.05mg/20mg = 95.25%), polyethylene glycol 400 (calculated percent: 0.95mg/20mg = 4.75%) as taught by Vergez (Page 17, Example 1, Table - Coating A). The limitation of at least one passageway would have been obvious over the passageway in the semipermeable membrane as taught by Vergez (Page 2, [0015]).

Regarding instant claim 32, the limitation of the immediate release thiazolidinedione coat comprising pioglitazone would have been obvious over the coating with compound (I), as taught by Lewis (Page 7, lines 29-32) in view of the pioglitazone in a layer surrounding a core of metformin, as taught by Cutie (Page 10, claim 8), and further in view of the semipermeable membrane with at least one passageway, as taught by Vergez (Page 2, [0015]). Cutie teaches binders such as microcrystalline cellulose, gum tragacanth or gelatin (Page 6, line 33 to Page 7, line 1). Vergez teaches that soaps and detergents may be used as surfactants (Page 13, [0136]). The pore former would have been obvious over the PVP taught by Lewis (Page 7, Example 1, line 14). The use of water would have been obvious over the water used in the coating by Lewis (Page 7, line 32).

Conclusion

17. No claims are allowed.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aradhana Sasan whose telephone number is (571) 272-9022. The examiner can normally be reached Monday to Thursday from 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached at 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Aradhana Sasan/
Examiner, Art Unit 1615

/Michael P Woodward/
Supervisory Patent Examiner, Art Unit 1615